913.789
Fit

MONOGRAPH NO. 1

FOUR ARCHAEOLOGICAL SITES IN THE BIG BURRO MOUNTAINS OF NEW MEXICO

by James E. Fitting

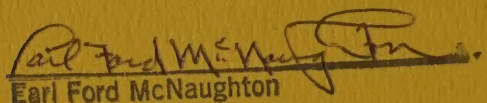
with contributions by
Timothy C. Klinger
Stephen Lekson
and
Elizabeth Skinner

center of anthropological studies
PUBLICATIONS
RESEARCH
COAS

1973

$1.75

Collection of Native North American Indian Books,
Historical Books, Atlases, plus other important authors and family heirloom books.
As of 12-31-93



Earl Ford McNaughton

1973

COAS PUBLISHING AND RESEARCH
1720 Sacramento Circle
Las Cruces, New Mexico 88001

FOUR ARCHAEOLOGICAL SITES

IN THE

BIG BURRO MOUNTAINS OF NEW MEXICO

by

James E. Fitting

with contributions

by

Timothy C. Klinger
Elizabeth Skinner
and
Stephen Lekson

1973

ABSTRACT

The United States Department of Agriculture Forest Service supported 110 man days of archaeological field work during June and July of 1972 to ascertain the significance of four archaeological sites on exchange lands in the Big Burro Mountains area of Grant County, New Mexico. These were the C F Spring Site, the Willow Creek Site, and two sites near Burro Springs referred to as Burro Springs Site No. 1 and No. 2.

In addition to mapping of the sites, three rooms were excavated at the C F Spring site, three rooms at the Willow Creek site, three rooms at Burro Springs Site No. 1 and one room at Burro Springs Site No. 2.

Nearly 7,000 artifacts were recovered consisting of pot sherds, chipped stone and ground stone. The excavations and artifact analysis indicate that the Big Burro Mountain area was occupied by Mogollon peoples between A.D. 400 and A.D. 1500. Occupational evidence was found of the following: early Mogollon (Burro Springs Site No. 2), Classic Mimbres (Willow Creek, Burro Springs Site No. 1), Animas Phase (C F Spring) and Salado (Willow Creek).

CONTENTS

ABSTRACT..... i

CONTENTS..... ii

LIST OF TABLES..... iii

LIST OF FIGURES..... iv

PROJECT BACKGROUND..... 1

PHYSICAL SETTING..... 2

THE C F SPRING SITE..... 4

THE WILLOW CREEK SITE..... 9

BURRO SPRINGS SITE NO. 1..... 15

BURRO SPRINGS SITE NO. 2..... 21

CERAMICS..... 24

CHIPPED STONE..... 27

GROUND STONE..... 35

CONCLUSIONS..... 38

APPENDIX A. CERAMIC COUNTS by Timothy C. Klinger..... 40

APPENDIX B. CHIPPED STONE DATA by Elizabeth Skinner..... 44

APPENDIX C. ATTRIBUTES OF MANOS by Stephen Lekson..... 48

REFERENCES..... 49

LIST OF TABLES

TABLE 1. CHIPPED STONE..... 28

TABLE 2. SHERD COUNTS FROM C F SPRING..... 40

TABLE 3. SHERD COUNTS FROM WILLOW CREEK..... 41

TABLE 4. SHERD COUNTS FROM BURRO SPRINGS SITE NO. 1..... 43

TABLE 5. SHERD COUNTS FROM BURRO SPRINGS SITE NO. 2..... 43

TABLE 6. CHIPPED STONE FROM C F SPRING..... 44

TABLE 7. CHIPPED STONE FROM WILLOW CREEK..... 45

TABLE 8. CHIPPED STONE FROM BURRO SPRINGS SITE NO. 1..... 46

TABLE 9. CHIPPED STONE FROM BURRO SPRINGS SITE NO. 2..... 47

TABLE 10. ATTRIBUTES OF MANOS..... 48

LIST OF FIGURES

FIGURE 1. BIG BURRO MOUNTAINS EXCAVATIONS..... 3

FIGURE 2. C F SPRING SITE..... 5

FIGURE 3. C F SPRING SITE..... 7

FIGURE 4. C F SPRING SITE..... 8

FIGURE 5. WILLOW CREEK SITE..... 10

FIGURE 6. WILLOW CREEK SITE..... 12

FIGURE 7. WILLOW CREEK SITE..... 13

FIGURE 8. BURRO SPRINGS SITE NO. 1..... 16

FIGURE 9. BURRO SPRINGS SITE NO. 1..... 17

FIGURE 10. BURRO SPRINGS SITE NO. 1..... 19

FIGURE 11. BURRO SPRINGS SITE NO. 1..... 20

FIGURE 12. BURRO SPRINGS SITE NO. 2..... 23

FIGURE 13. BURRO SPRINGS SITE NO. 2..... 25

FIGURE 14. CHIPPED STONE..... 31

FIGURE 15. CHIPPED STONE..... 33

FIGURE 16. MANOS..... 37

FOUR ARCHAEOLOGICAL SITES IN THE BIG BURRO MOUNTAINS OF NEW MEXICO

PROJECT BACKGROUND

In 1968-69 and again in 1971-73, survey permits were obtained in order to carry out archaeological investigations in portions of the Gila National Forest. This was a part of a larger study of prehistoric settlement and land use patterns in southwestern New Mexico. As we had previously studied the region, the United States Department of Agriculture Forest Service, Silver City office, contacted us in the spring of 1972 about the archaeological significance of certain areas of the forest in the Burro Mountains which were to be part of a land exchange.

We were familiar with parts of the area, particularly along the Mangus Creek drainage which was part of our Cliff-Gila survey area. At the request of the Forest Service, several days were spent on site survey in those parts of the exchange which had not previously been visited. While not being able to carry out a total survey of the area, major sites were located and site distribution was correlated with soil and land form types. This allowed predictions about site distribution in areas not visited.

Most of the exchange area was in the rougher portions of the Burro Mountains. Areas suitable for human habitation apparently were limited to the Gila conglomerates on the borders of the Big Burro Mountains. Only single scattered field rooms were located in other parts of the exchange area.

In the spring of 1972, a report was filed with the Forest Service listing the sites located in the spring survey with the recommendation that four be more intensively studied. In May, the Forest Service approved a one-month salvage project to be carried out in the area of C F Spring, Willow Creek and at two sites near Burro Springs. The second site at Burro Springs was extremely large, apparently an early Mogollon pit house village, and it was agreed that in addition to working on this site for a portion of the salvage contract, the project would retain access to the site for three years as a part of the exchange agreement. During this time, additional funds would be sought for further work on the site.

The field portion of the project was under the direction of James Fitting, assisted by Stephen Lekson. Timothy Klinger worked in the field and supervised the laboratory portion of the project. The field crew was made up of Kenneth Robey, Linda Brown, Terri Ellerbrock, Elizabeth Skinner and Elizabeth Hornstein. The field portions of the project were carried out between June 15 and July 7, 1972 with an additional week spent in laboratory processing and several months more in writing. This report was completed in January of 1973.

PHYSICAL SETTING

The four sites investigated are located in the Big Burro Mountains in western Grant County, New Mexico. This particular district is bound on the east by the Mangus drainage, one of the main tributaries of the Cliff Valley of the Gila River. The Willow Creek and C F Spring sites are located on two of the many tributaries of Mangus Creek originating from the mountains to the southwest. The district is bound on the west by the Gila River; Burro Springs Canyon flows into the Gila River in the Red Rock Valley. The exchange lands consisted of two parcels, one along the upper Mangus and the second located near Burro Springs.

The Burro Mountains consist primarily of granite and associated rocks within the Burro Mountain banolith. Many of these flows are of early Tertiary age intruded into earlier precambrian metamorphic rocks. Since the area is so productive of minerals, the geology of the region is rather well known (Hewitt 1959, Gillerman 1964). Northwest and northeast striking faults are the dominant feature of the area with the Mangus fault and the Burro Springs fault being the major ones. The entire region is noted for both the variety and richness of mineral deposits. The Tyrone copper mine is the largest commercial operation in the area today and could be seen from several of the sites in the exchange area.

The Mangus and Burro Springs valleys are filled with recent alluvium derived largely from the looser Gila conglomerates which are of quaternary age.The sites are all located on terraces or erosion remnants between 40 and 60 feet above the valley floor. Elevations on the sites range from a little over 5400 feet above sea level to nearly 5800 feet above sea level. Both the C F Spring and Willow Creek sites are located on points of land while the Burro Springs sites are located on the margin of the desert mesa between the Red Rock Valley and the Burro Mountain Block. The sites are all located near bedrock outcroppings but never on them.

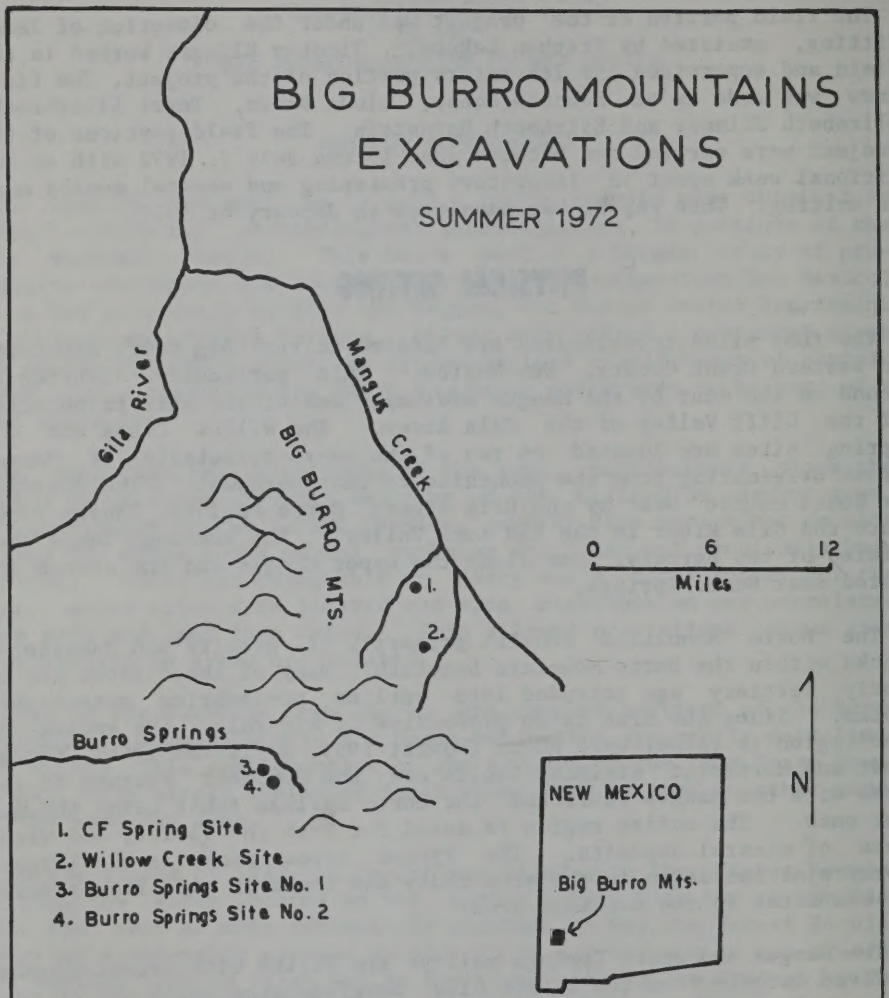

BIG BURRO MOUNTAINS
EXCAVATIONS
SUMMER 1972
Gila River
Mangus Creek
BIG BURRO MTS.
Burro Springs
1.
2.
3.
4.
0
6
12
Miles
N
NEW MEXICO
Big Burro Mts.
1. CF Spring Site
2. Willow Creek Site
3. Burro Springs Site No. 1
4. Burro Springs Site No. 2
jef 1/9/73

FIGURE 1.

Both the C F Spring site and the Willow Creek site are located in the Willow Creek Block, a subunit of the Burro Mountain Block. The Shrine Granites, which mark this block (a coarse-grained hornblends granite) outcrop on the edges of the C F Spring site. A bluff of rhyolite, marked by a series of small shelters, all too small for human habitation, is exposed across a small canyon to the north of the Willow Creek site.

The Burro Springs sites are all located on the conglomerates along the south side of Burro Springs Canyon.Across the valley are uplifted outcroppings of granite with several rhyolite dykes. A single chipping station was located near one such dyke on the north side of the valley.

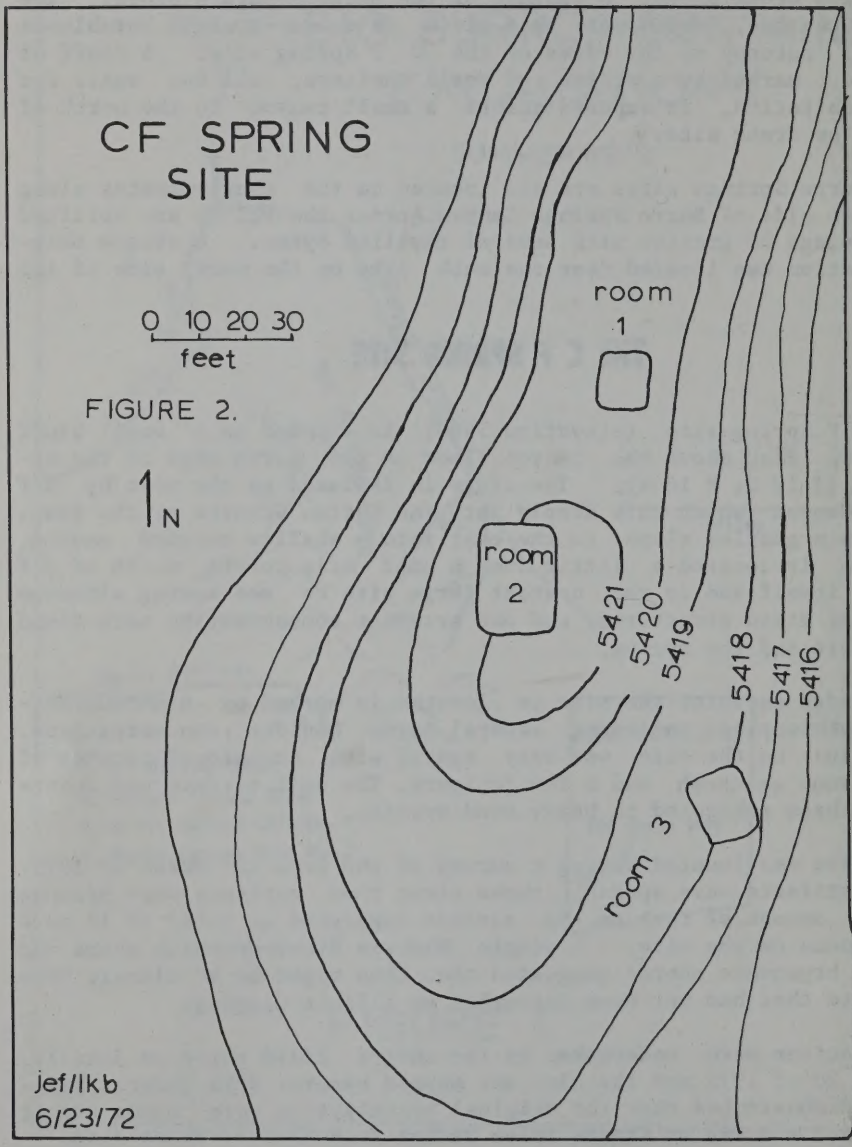
THE C F SPRING SITE

The C F Spring site (elevation 5460) is located on a small bluff about 60 feet above the canyon floor on the north edge of the exchange (T 18 S, R 16 W). The ridge is isolated on the west by C F Spring Canyon which cuts deeply into the Shrine Granite of the area. There is a gentler slope to the east into a shallow unnamed canyon. The site is located a little over a half mile to the north of C F Spring itself and is the nearest large site to the spring although two small field structures and one artifact concentration were found between it and the spring.

The ridge on which the site is located is marked by numerous bedrock outcroppings including several large boulder concentrations. Vegetation on the site was very sparse with occasional patches of grass, some saltbush and a few junipers. The soil surface was coarse and has been subjected to heavy wind erosion.

The site was located during a survey of the area in March of 1972. While artifacts were sparse, three clear room outlines were present and the amount of rock on the surface suggested a total of 12 possible rooms on the site. A single Mimbres Black-on-white sherd and several brownware sherds suggested that this might be a Classic Mimbres site that had not been disturbed by illicit digging.

Excavations were undertaken by the entire field party on June 17, 19, and 20 of 1972 and the site was mapped several days later. Excavation demonstrated that the original speculations were wrong for it was potted and was an Animas Phase rather than Mimbres Phase site.


CF SPRING SITE
0 10 20 30
feet
FIGURE 2.
1N
room 1
room 2
room 3
5421
5420
5419
5418
5417
5416
jef/lkb
6/23/72

The first room, Room 1, was located at the north end of the site and was 12 feet long and 11 feet wide. It was marked by a rectangular outline of rocks which was not complete. An adobe floor was encountered less than a foot below the surface which rested directly on the hardpan which is under the entire site. The constructional sequence found in this room characterized all three rooms which were excavated on the site. A shallow pit was dug through the humus to the hardpan at a depth of a little over a foot below the surface. The walls were based on cobbles which were placed against the humus on the hardpan. Adobe was puddled against the rock foundations and packed to form a cement-like floor. The wall construction is still a mystery for only a few rocks representing wall fall were found within the rooms although much of the debris outside of the rooms (which were originally thought to represent additional rooms) could have come from the low walls of the structures.

Room 1,and all other rooms,lacked any type of floor features. This, along with the low artifact yield, leads to the conclusion that these were storage structures, or field rooms associated with some larger Animas Phase site. If this is the case, the site is yet to be located for the nearest large Animas Phase site of which location is now known is in the Cliff Valley north of Gila.

Room 2 was similar to Room 1 in constructional detail although two tiers of stone foundation were found in some areas.There also appears to have been a doorway along the east wall. The southeastern section of the room is missing although the concentration of rock debris inside this quadrant of the structure suggests that it may have fallen into the room. Room 2 was also the largest structure on the site, measuring 22 feet by 18 feet.No interior walls or interior supporting posts were found so the technique of construction is still not known.

Room 3 was built on the hillside east of the other rooms and there were several tiers of stone on the high side of the remaining walls. A pot hole was found in the northwestern sector which had been dug through the adobe into the hardpan under the floor. It is to be hoped that this futile effort discouraged the would-be pot hunter from destroying other sites within the Gila National Forest. This room was trapazoidal in shape, measuring 15 feet long and between nine and ten feet in width. Several large stones were found within the hardpan on the floor and may have served as a base for the floor.

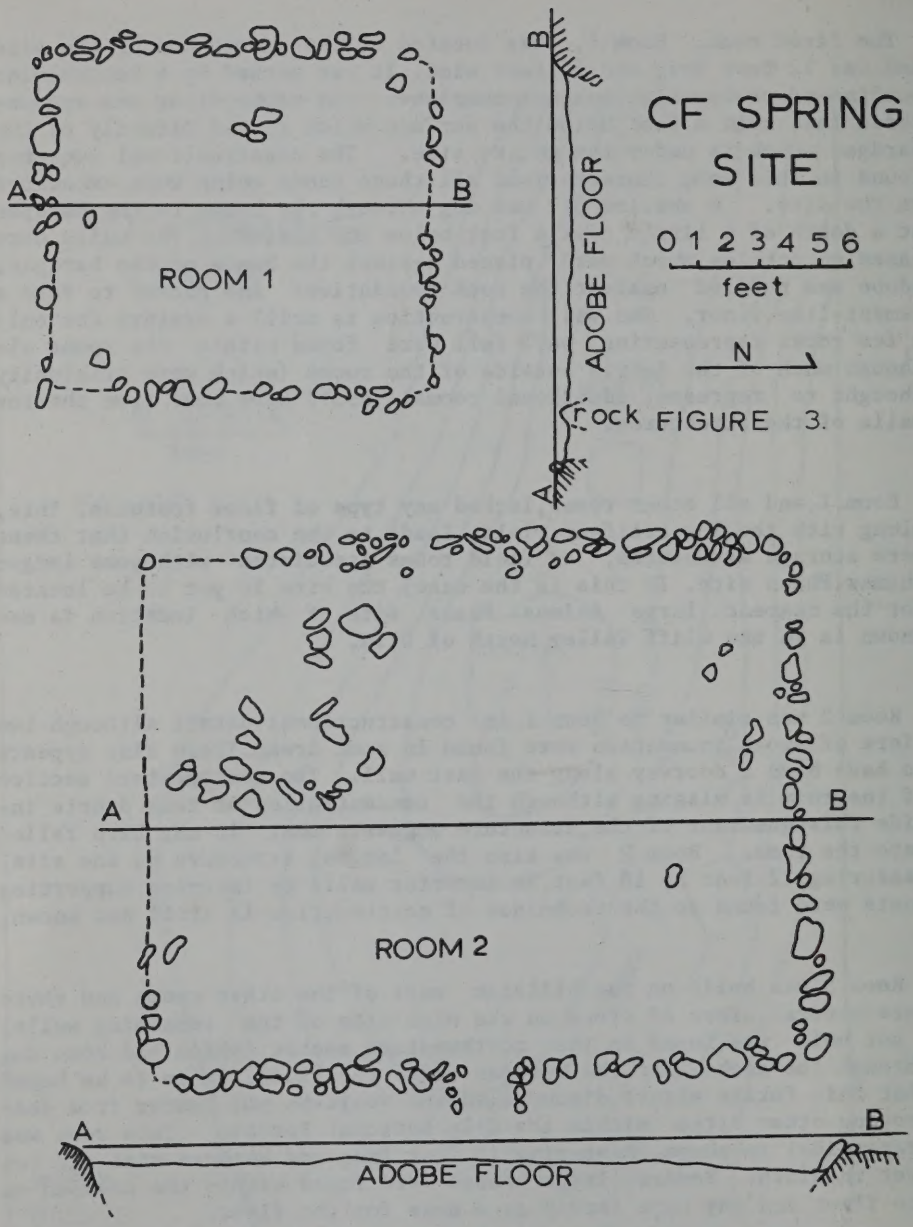

CF SPRING SITE
0 1 2 3 4 5 6
feet
N
A
B
ROOM 1
ADOBE FLOOR
Rock
ROOM 2
ADOBE FLOOR

FIGURE 3.

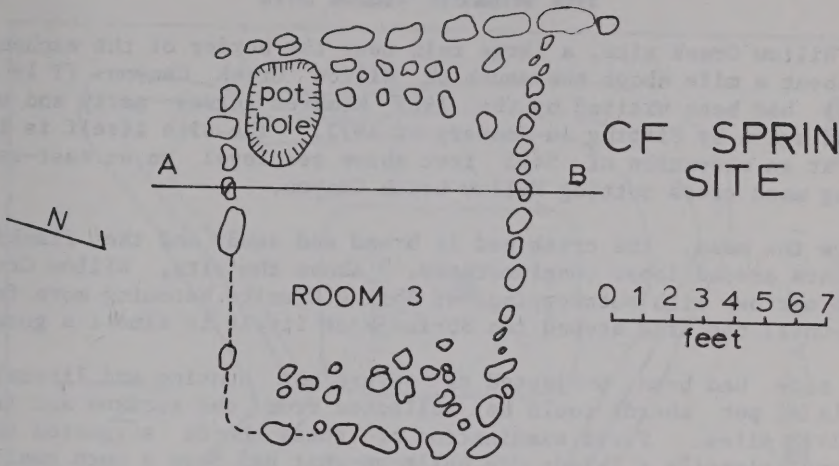
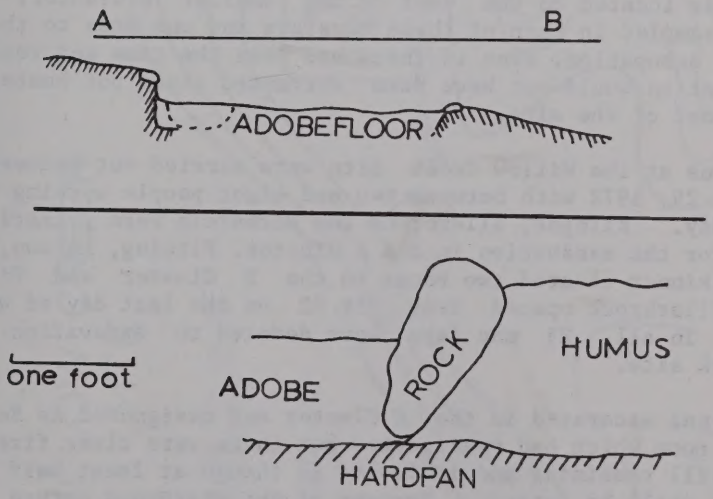


FIGURE 4.



IDEALIZED SECTION

THE WILLOW CREEK SITE

The Willow Creek site, a large ruin near the border of the exchange area about a mile above the mouth of Willow Creek Canyon (T 19 S, R 15 W) had been visited by the 1967 Mimbres survey party and was visited again by Fitting in January of 1972. The site itself is located at an elevation of 5475 feet above sea level on an east-west tending mesa cross cutting Willow Creek Canyon.

Below the mesa, the creek bed is broad and sandy and the flanking hills are eroded loose conglomerates. Above the site, Willow Creek Canyon narrows with outcroppings of Shrine Granite becoming more frequent until the area around the Shrine Mine itself is almost a gorge.

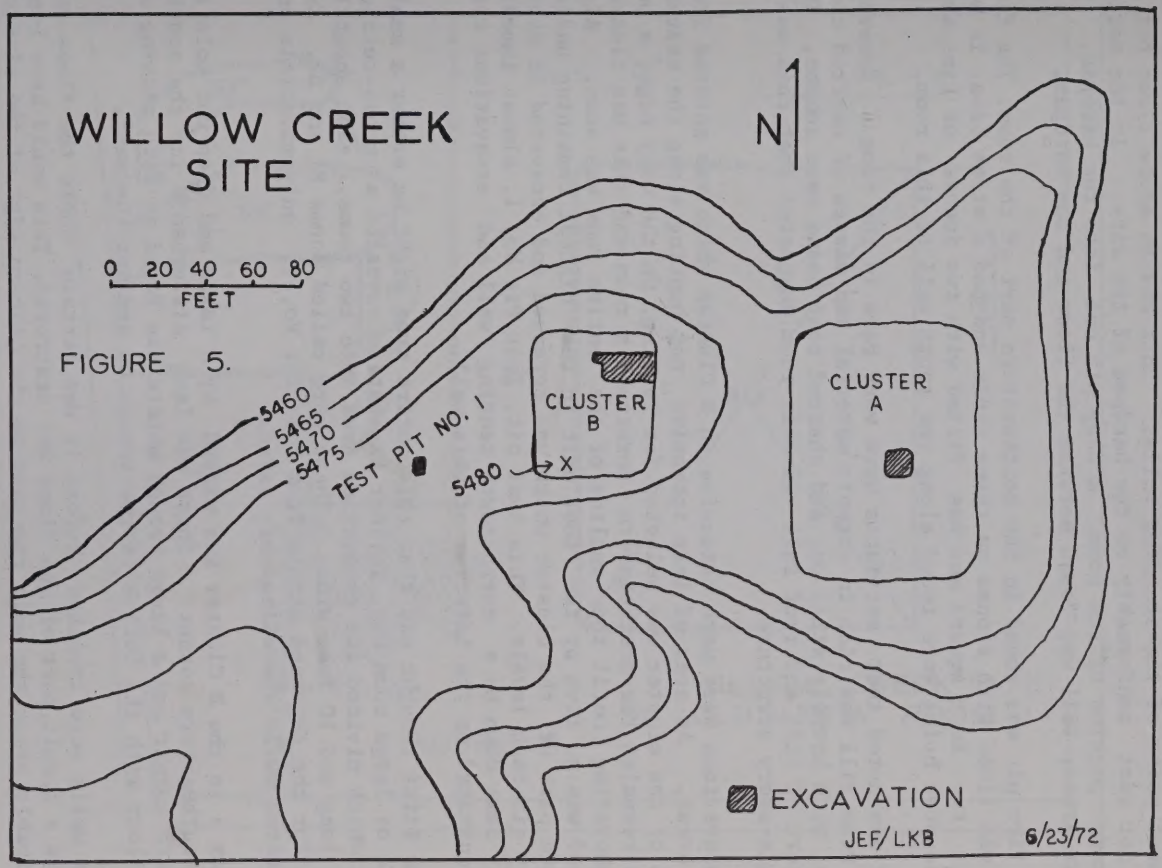
The site had been subjected to severe pot hunting and literally bushels of pot sherds could be collected from the surface and from backdirt piles. Field examination of these sherds suggested that this was primarily a Salado site built on what had been a much smaller Mimbres ruin.

The site was marked by two distinct room clusters. A Cluster, the largest, was located to the west of the smaller B Cluster. Small areas were sampled in each of these clusters and one area to the west of the main occupation. Even if there had been the time and resources total excavation would not have been warranted since pot hunters had destroyed most of the site.

Excavations at the Willow Creek site were carried out between June 21 and June 29, 1972 with between two and eight people working on the site each day. Klinger, Ellerbrock and Hornstein were primarily responsible for the excavation in the A Cluster. Fitting, Lekson,Robey, Brown and Skinner cleared two rooms in the B Cluster and Fitting, Brown and Ellerbrock opened Test Pit #2 on the last day of work on the site. In all, 25 man days were devoted to excavation at the Willow Creek site.

One room was excavated in the A Cluster and designated as Room A1. This was a room which had been potted but there were clear fired adobe walls still remaining and it looked as though at least half of the floor might still be intact. Because of the disturbed nature of the fill, none of the material was screened and the only artifacts saved were those encountered while shoveling.

The floor features and excavation depths are given on the illustra-


WILLOW CREEK SITE
N
0 20 40 60 80
FEET
FIGURE 5.
5460
5465
5470
5475
TEST PIT NO. 1
5480
X
CLUSTER B
CLUSTER A
EXCAVATION
JEF/LKB
6/23/72

tion showing the amount of excavation in Room 1 of the A Cluster. The first floor was encountered at a depth of 27 inches below the highest point of the standing walls. This was an adobe floor but it did not rest conformably on the hardpan of the site. In the northeastern portion of the room, a deep pit cut into the hardpan. In other areas, fill was found between the floor and the hardpan.

A fire pit was found in the southwestern part of the room. The fire pit was lined with stones on three sides and had a stone base. It was about two feet square and was filled with two inches of fine ash. Three post holes were found along the south wall of this room.

It was noted that artifacts were very rare in the room. However, the room fill was rich in organic material and masses of charred corn cobs, with kernels still on, and charred roof beams were common. The pattern of fill and roof fall in this room suggested that this was a single-story structure.

Excavations were more extensive in B Cluster which was entered from two areas. An area of less intensive pot hunting along the eastern side of the cluster was selected for testing. On the very edge, a pot hole revealed the southeastern corner of a room and this was cleared by shoveling until the outline of the entire room was seen. Also opened was a five by ten foot unit in the highest remaining undisturbed part of the cluster which was screened and excavated in arbitrary six-inch levels. This test pit, Test Pit No. 1, almost immediately came down on a north-south tending wall and excavations were concentrated on the interior of this wall.

The first thought was that this entire area might be either a small plaza or large room but further excavation revealed a cross-cutting wall which divided the excavation area into two rooms, each about 18 feet long and 10 feet wide. These were called Rooms B1 and B2. Except for the screened sample from Test Pit No. 1, only materials encountered while shoveling were saved.

Room 1 in the B Cluster was marked by a large and deep pot hole in the southeastern corner. There was less disturbance in the southwestern corner and a large trough metate was found <u>in situ</u> resting on the floor with the bottom of the trough up against the wall.

The walls were trenched before it was certain where the floor was and as a result, part of the floor was destroyed. This would have been inevitable since the wall remnants on the eastern edge of the cluster

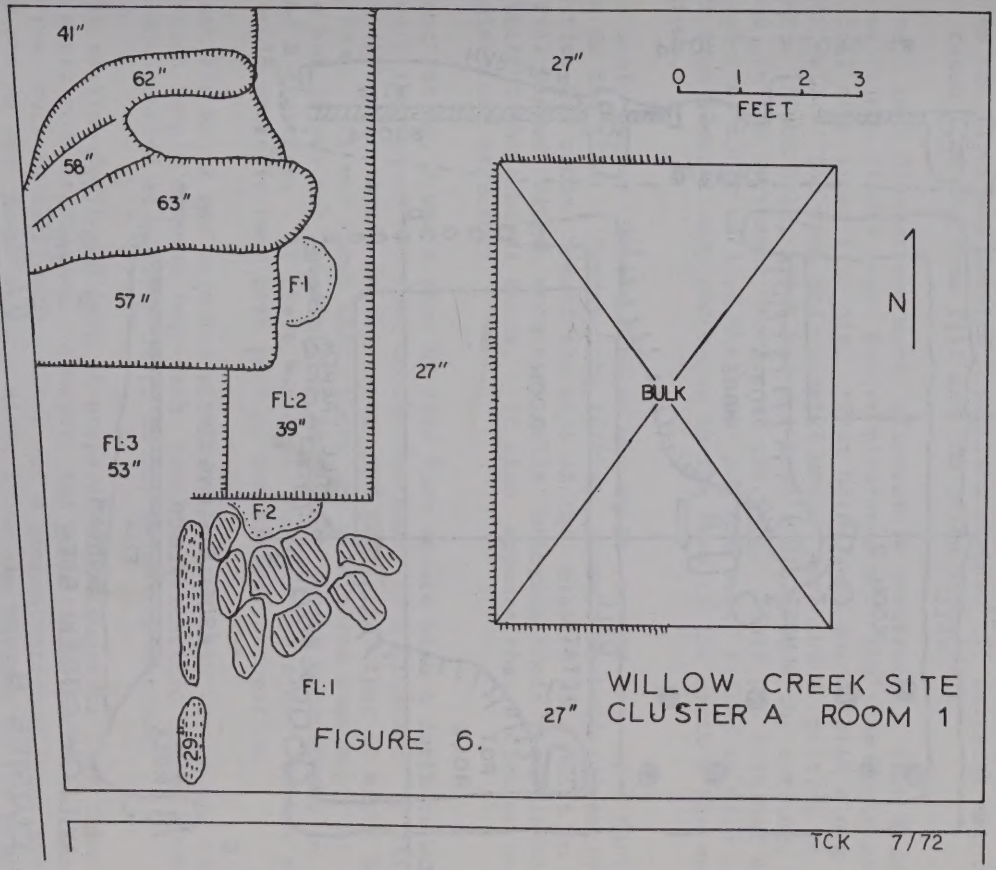
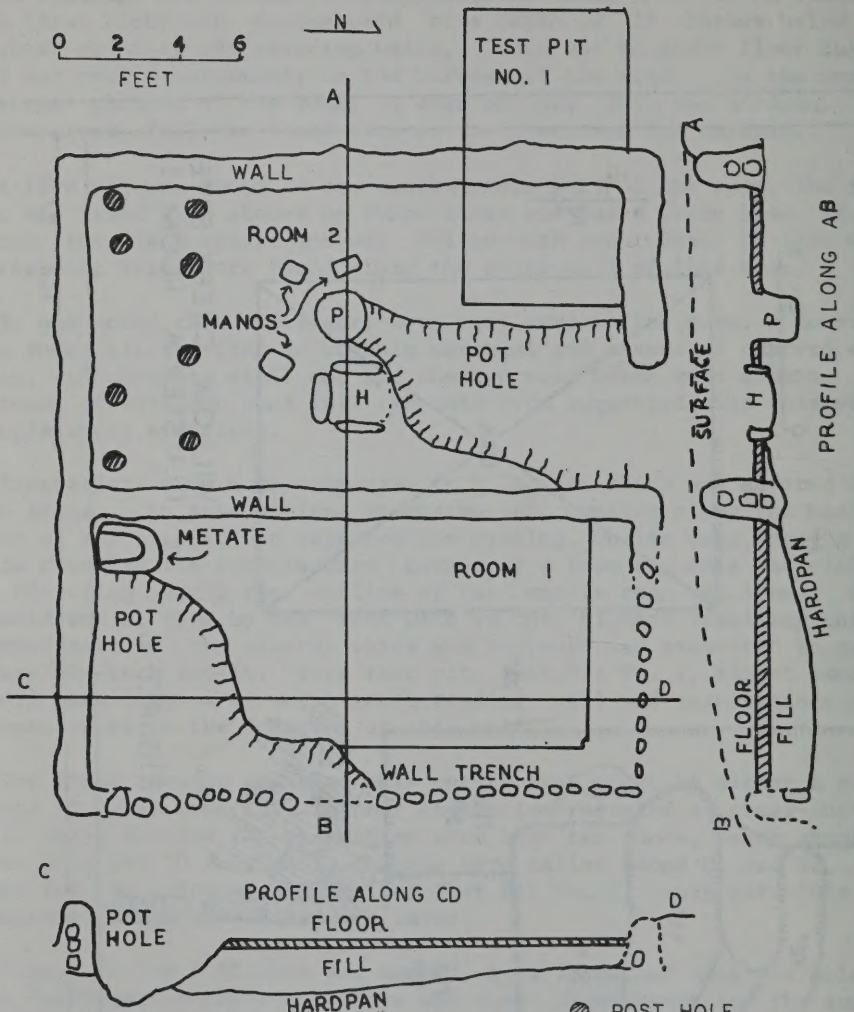

41"
62"
58"
63"
57"
F-1
FL-2
39"
FL-3
53"
F-2
FL-1
29"
27"
27"
0 1 2 3
FEET
BULK
N
WILLOW CREEK SITE
CLUSTER A ROOM 1
TCK 7/72

FIGURE 6.



WILLOW CREEK SITE

CLUSTER B

FIGURE 7.

existed only below the floor level. This area had been filled in to bring the floor up to the level of the hardpan in the central portion of the cluster but the outside wall had fallen away to below the floor level.

When the floor was located, separate samples of cultural material were taken from the room fill and the below floor fill.

Room 2 in B Cluster was more elaborately constructed than Room 1. The walls and floors were better plastered and the room contained a vertical slab lined fire pit. Post holes were encountered along the south wall of the room and several manos were found resting on the floor. A pot hole, which had not been visible from the surface, was found in the northeast corner of the room. This pot hole had destroyed the north wall of the room and had been filled in with back dirt from several deep pot holes in the area to the north of the excavations.

It would appear that B Cluster was built on the top of a natural rise on the site. Perhaps the initial rooms were built directly on the rise but rooms toward the edge of the cluster were built on top of fill placed within retaining walls bringing their floor level up to that of the central rooms. It also appears that B Cluster was a single-story structure.

Test Pit No. 2 was a five by five foot square with a north to south orientation opened 40 feet to the southwest of B Cluster. A slight depression was noted in this area and indicated that it might be a pit room. It was known that there was a Mimbres component at the site but it was not possible to isolate it during excavations in the A and B clusters. If there was a pit room on the site, it was felt it would probably have been part of the Mimbres occupation.

Test Pit No. 2 was screened with quarter-inch mesh screen and three six-inch levels and one four-inch level was excavated before hardpan was encountered at a depth of 22 inches below the surface.

The shallow depth and lack of prepared floor suggests that this was not a pit room depression. However, the humus is deeper here than in the road cuts in surrounding areas and a concentration of large brownware sherds was found resting directly on the hardpan at the base of the test pit which would not be expected with a natural humus. It might be that this area close to the B Cluster was stripped, at one point, down to the hardpan to furnish fill for the rooms at the edge

of the cluster. As the cluster disintegrated, materials from the fill again washed down into this low area covering cultural material left on the surface.

BURRO SPRINGS SITE NO. 1

The Burro Springs Site No. 1 was found in March of 1972 by Fitting and David Anderson. It was a large site at slightly under 5800 feet in elevation located to the south and west of Burro Springs in Burro Springs Canyon (T 19 S, R 16 W). It was located on a terrace above the canyon and consisted of two large room clusters and several outlying single rooms. A Cluster was about 40 feet square and B Cluster was 50 feet wide and 60 feet long. The two main clusters were marked by heavy boulder concentrations and had been disturbed by extensive pot hunting. Surface material suggested that this was a Classic Mimbres site and this interpretation was supported by excavation.

Excavations were carried out on the site by Lekson and Skinner on June 22, 23, 24, 30 and July 1 and 2, 1972. Fitting and Brown worked on the site for the last three of these days so a total of 18 man days were devoted to this site.

A Cluster, which appeared to be the least disturbed, was subjected to the most intensive testing. From surface evidences, it appeared to be a rectangular stone room cluster and a rough wall outline could be seen on the surface. A trench was first opened along the east wall of the cluster with the hope of locating interior walls.However, no interior walls were found in the entire length of the structure so the exterior, or what was then felt to be the exterior, was trenched and several abutting walls were located almost immediately. The area from the mid-point north was cleared along the eastern edge of the cluster revealing two rooms, Room 1 and Room 2. These rooms were only four feet wide. Both of these were excavated down to hardpan at a depth of four feet below the highest point of the wall. No clear floors or floor features were found in either of these rooms. The fill in Room 1 was screened and both cultural and organic material were very sparse.

The interior of the north wall was also trenched with no interior partitions and, again, a series of parallel walls about four feet apart were located. Along the north wall, an eight foot by eight foot square was opened incorporating the east half of Room 3 and the adjacent interior portions of what is now interpreted as a plaza or

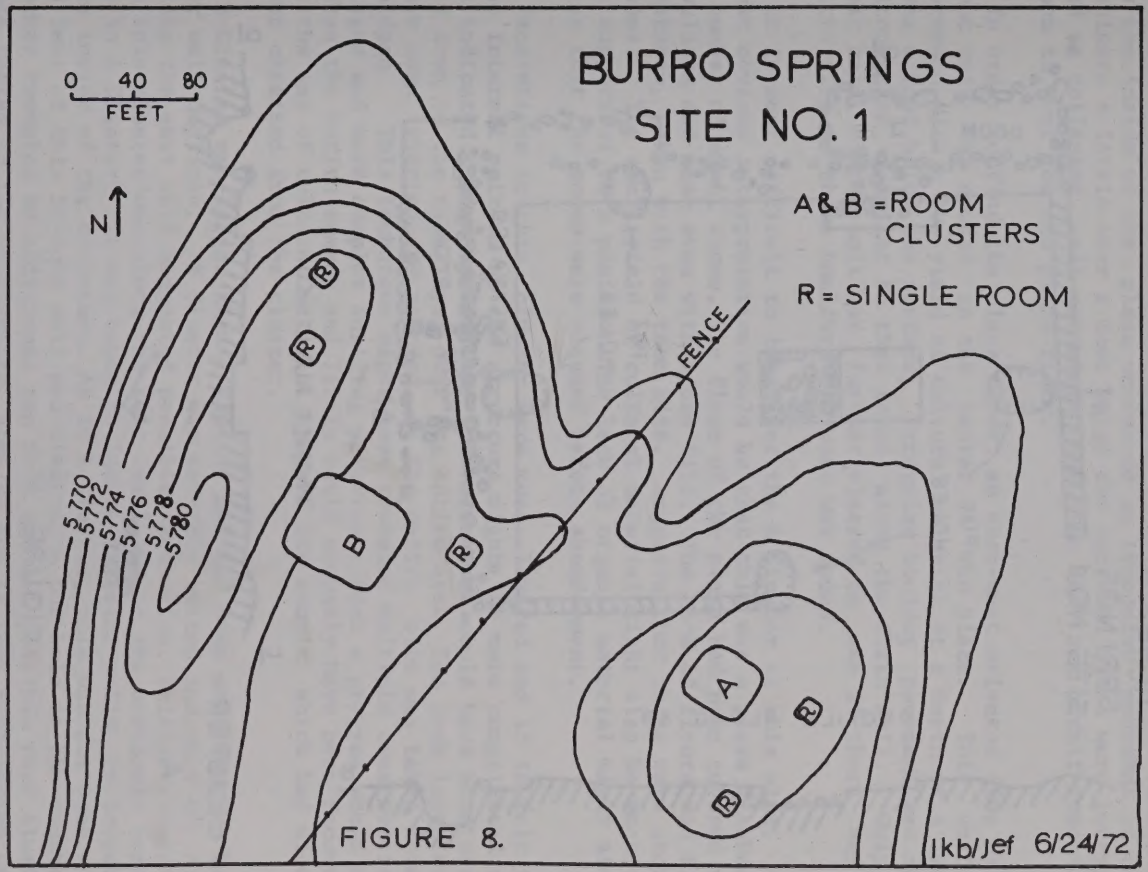

BURRO SPRINGS
SITE NO. 1
0 40 80
FEET
N
A & B = ROOM CLUSTERS
R = SINGLE ROOM
FENCE
5770
5772
5774
5776
5778
5780
A
B
R
lkb/jef 6/24/72

FIGURE 8.

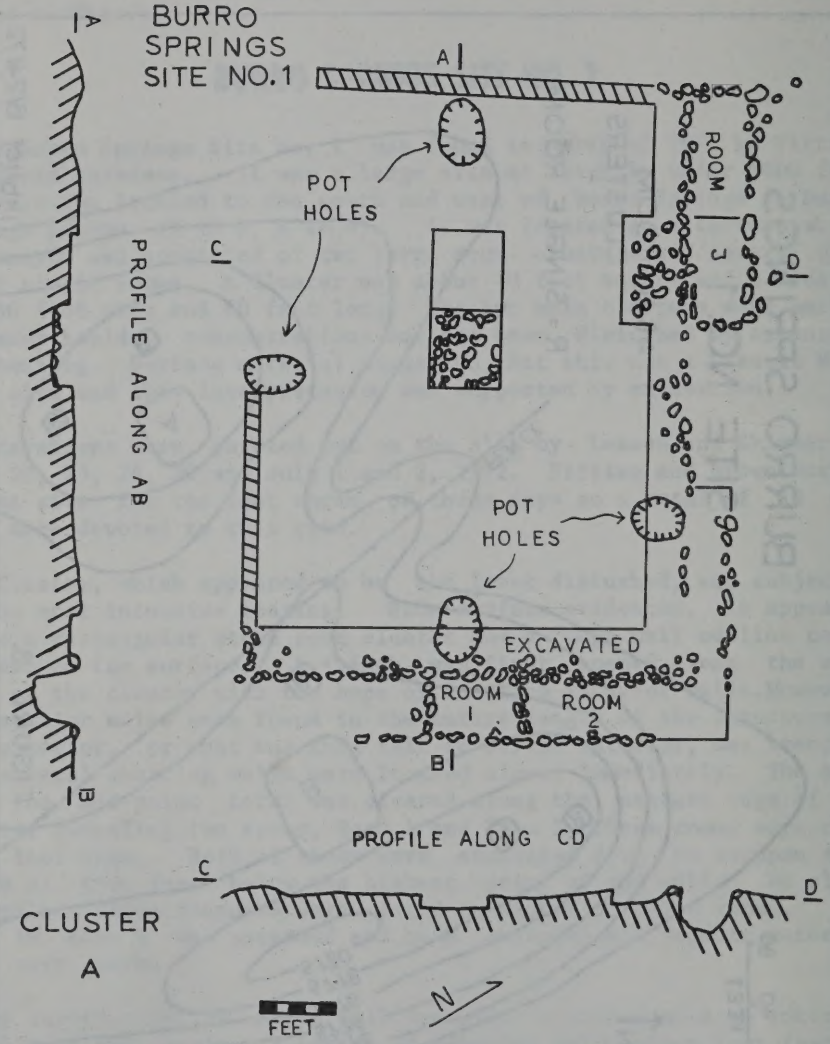

BURRO SPRINGS SITE NO.1
A
B
C
D
POT HOLES
POT HOLES
ROOM J
PROFILE ALONG AB
EXCAVATED
ROOM 1
ROOM 2
PROFILE ALONG CD
CLUSTER A
FEET
N

FIGURE 9

courtyard. Room 3, like the other rooms, was almost four feet deep with no clear floor or floor features. The portion of the excavations on the inside of the plaza uncovered an irregular pavement of large boulders a little over a foot below the surface. These were interpreted as collapsed wall materials but time did not permit removal of them to hunt for the plaza floor.

In order to find the plaza floor, an east-west oriented five by ten foot unit was opened in the center of the plaza. This unit was screened with a low yield of cultural material.At a depth of a little over a foot below the surface, irregular boulder pavement was again encountered, similar to that found along the north wall. Only the east half of the unit was further cleared to see if there was any patterning to these boulders but none was found.

It is most difficult to interpret the A Cluster at this site. The most obvious interpretation would be that this was a plaza flanked by a number of small rooms. The floor of the plaza had been covered with boulders and made even with adobe fill. The lack of floors and floor features, taken with the room size, suggests that these were storage rooms. The small yield of cultural material might also be mentioned in support of this position.The lack of organic material might simply mean that the rooms were cleaned before abandonment.

Excavations in this cluster were most limited and it is felt that the internal pattern of the structure might be more complicated than is indicated. Given more time, this structure could have been stripped down to the rock layer over its entire area. The rock layer could have been plotted and removed as the entire site was taken down to hardpan. This technique might have revealed multiple constructional stages and more complex building patterns. Such a program would have taken the entire summer and little would probably have been recovered in the way of cultural material beyond the sample which had already been obtained from the cluster.

B Cluster was larger than A Cluster and had even more massive boulder wall outlines. B Cluster was severely potted and only the areas along the east wall suggested possible excavation. Initial excavation in this cluster was along the east wall and in the northeast corner. As in A Cluster, it was hoped to locate interior walls by trenching the inside of the structure. As in A Cluster, this was not done. Over 20 feet of this 50-foot wall was cleared. A pot hole in the southeast corner revealed an additional ten feet and all possible rock clusters were tested in the intervening area to see if they represented cross

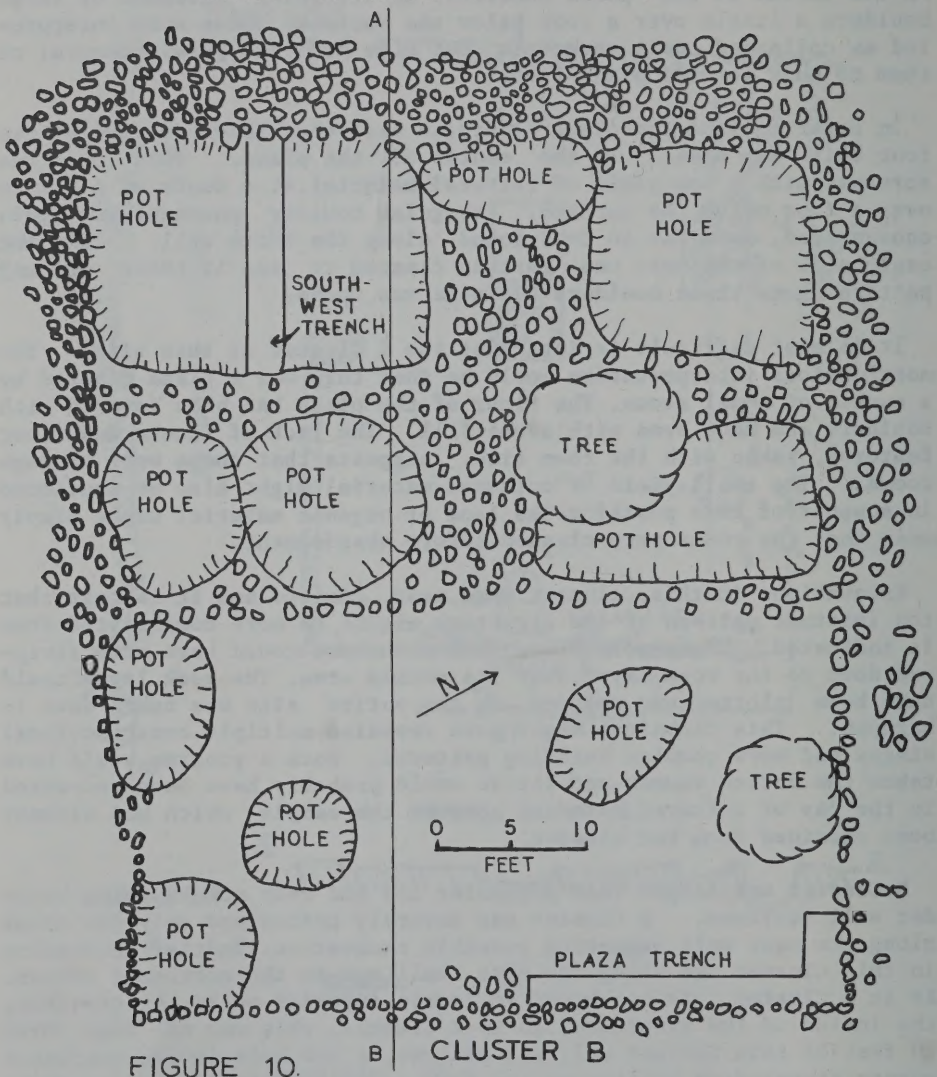
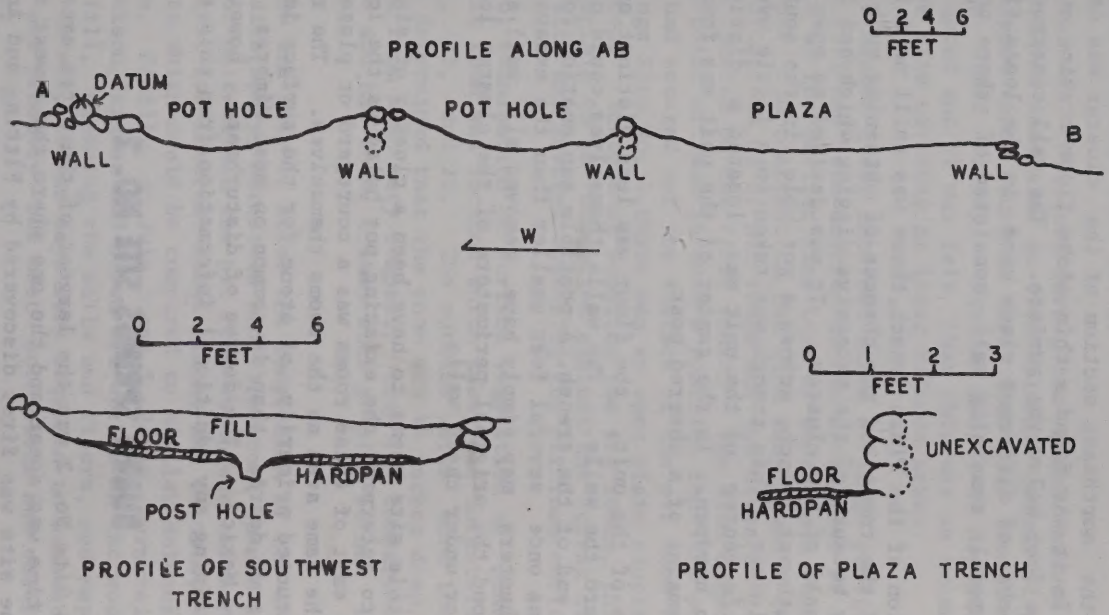

BURRO SPRINGS SITE NO. 1
A
POT HOLE
POT HOLE
POT HOLE
SOUTH-WEST TRENCH
TREE
POT HOLE
POT HOLE
POT HOLE
POT HOLE
N
POT HOLE
TREE
POT HOLE
0 5 10
FEET
POT HOLE
PLAZA TRENCH
B
CLUSTER B

FIGURE 10.

BURRO SPRINGS SITE NO. 1



CLUSTER B

FIGURE 11

walls. The eastern half of B Cluster appeared to have been a plaza or courtyard with all rooms located in the western half of the cluster.

The trench in the northeast section of the cluster was called the Plaza Trench. In it was found a thin adobe floor resting on hardpan at a depth of one foot below the surface. The wall construction was variable with rocks of different sizes used in the loose fill along the wall. The modal remaining wall consisted of three courses of masonry.

After excavation of the Plaza Trench, there was still no information on the nature of the rooms and the chances of obtaining such information seemed poor because of the extensive digging which had been done in the western half of the cluster. It was decided to open a narrow trench, the Southwest Trench, across a pot hole in the southwestern corner of the cluster. This trench was taken to a little over a foot in depth. In the center of the unit was located a distinct adobe floor resting on hardpan. In the center of the unit was found a post hole with the remains of a charred post.

Near the edges of the unit, the floor was less distinct and seemed to slope up toward the walls. The walls themselves could not be located in either end of the trench. A possible explanation for this is that the room was once several feet smaller than the excavations indicated. Pot hunters may simply have removed all wall stones and rolled them beyond the original perimeters of the cluster looking for burial pits in or under these walls.

B Cluster at this site seems to have been a cluster of six rooms, if it is possible to interpret the existing pot holes as the location of rooms. To the east of these rooms was a courtyard or plaza covering approximately the same area as the rooms themselves. The rooms must have been constructed primarily of stone for the surface is littered with far more rock debris than is common on most Mimbres sites in southwestern New Mexico. The degree of disturbance, however, seems to preclude obtaining any additional information from this cluster.

BURRO SPRINGS SITE NO. 2

Burro Springs Site No. 2 was the largest of the sites excavated, the one where most time was spent, and the one where the fewest rooms were excavated. The site was first discovered by Fitting and Anderson in March of 1972 when an extensive distribution of chippage and ceramics

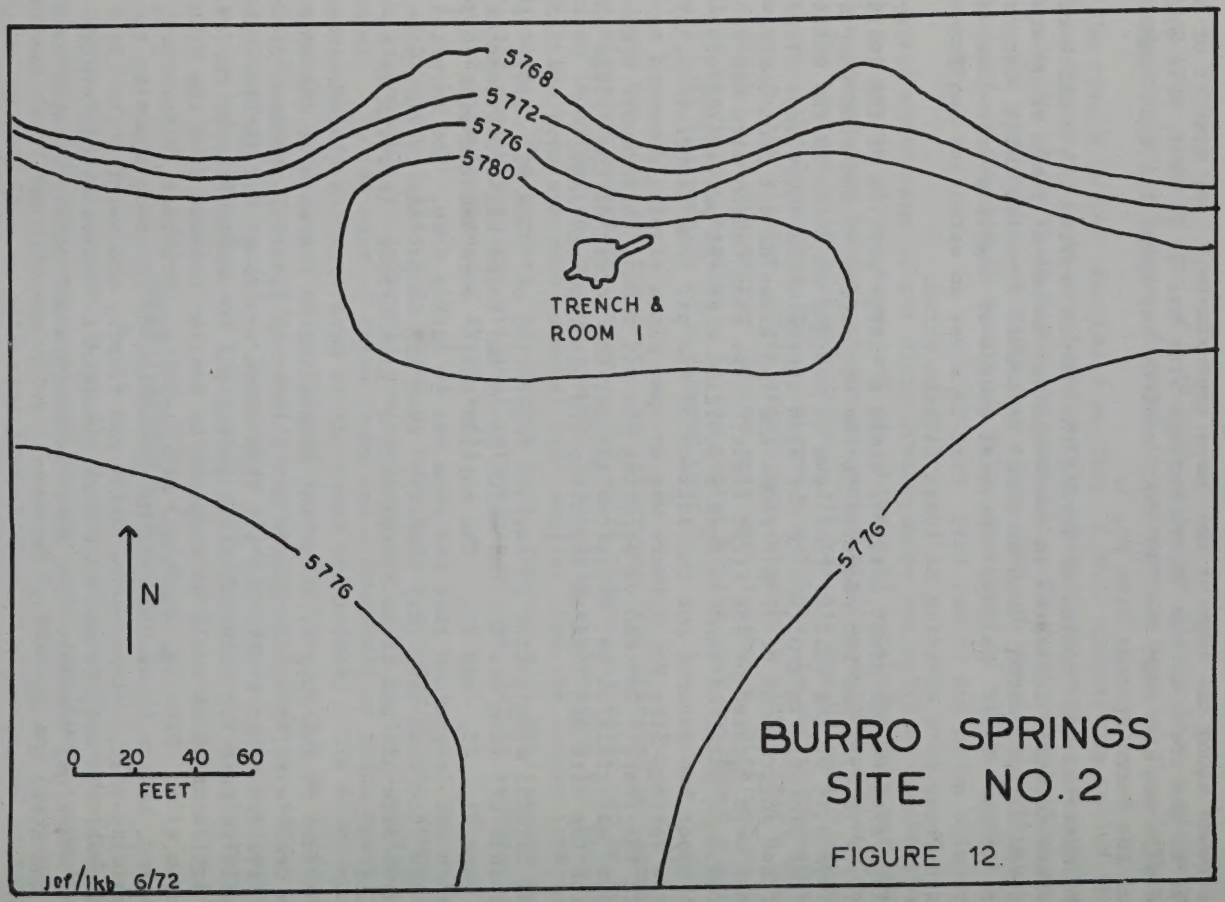
was found along the edge of the mesa approximately one quarter of a mile to the south of the Burro Springs Site No. 1 (T 19 S, R 16 W). The site was also near the 5800-foot contour but about ten feet higher than the Burro Springs Site No. 1.

No material was collected during the March survey but a check of surface ceramics indicated an overwhelming amount of plain brownware and red slipped wares such as were recovered from the Winn Canyon site in the Cliff Valley. Several sherds of Mogollon Red-on-brown were also noted and it was felt that this was an extensive San Francisco Phase site covering at least fifteen acres.

This site was of great interest since a large portion of the field efforts in 1972 had been devoted to the excavation of the Winn Canyon site,a site of the earlier Pine Lawn or Georgetown Phase in the Cliff Valley proper. In contrast to the Winn Canyon,where there were clear surface indications of 37 pit rooms and two kivas,no pit room depressions were located on the first visit. The Winn Canyon site was located on a point of land in such a position that the prevailing western winds had scoured out the surface of the pit room depressions. At Burro Springs Site No. 2,there was an open plain sloping downward toward the west. Instead of scouring the pit rooms, this caused windblown materials to be deposited against the crest of the ridge on which the site was located obscuring the pit room outlines.

By careful examination of surface vegetation on June 21, 1972, a possible pit room was located which Robey and Hornstein crosstrenched on June 21, 23, and 25. The outside walls were located with this trench and determined that the room was 44 inches deep. The material within the room was very compact, even in comparison to the Winn Canyon site and had to be broken with a pick before it could be removed.

On June 30 and July 1, after the completion of the work at the Willow Creek site,Robey, Hornstein and Ellerbrock opened a screened five by five foot unit within the pit room which was taken out in six-inch levels to test for internal stratigraphy and to obtain density ratios of artifacts which could be compared to similar columns from the Winn Canyon site. Finally, on July 3 and 5, Robey, Hornstein, Ellerbrock, Fitting, Lekson,Skinner and Brown all worked on the room removing the remaining fill, cleaning the walls and floors, and mapping the floor features. In all, 26 man days were required to excavate this single-room which was probably the most accessible and easily located room on the site.


5768
5772
5776
5780
TRENCH &
ROOM 1
5776
5776
N
0 20 40 60
FEET
jef/lkb 6/72
BURRO SPRINGS
SITE NO. 2
FIGURE 12.

The room was a rectangular pit room with a south-facing entrance. The room was 16 feet long and 12 feet wide with a floor a little less than four feet below the surface. During the initial trenching, a large metate was found in the fill. A hole had been worn or pecked in the center of it. It was found approximately two feet below the surface and rested on a layer of adobe and charred roof beams which were interpreted as roofing material. Below this was a circular pit dug into the hardpan floor. It would appear that the metate had been resting on the roof of the structure at the time that it collapsed.

Charred beam fragments were found throughout the fill, indicating that it had been burned. A number of large log fragments were found along the sloping entry way and at a point three feet from the walls of the room, the entry way had been blocked by a pile of loosely-layed stones.

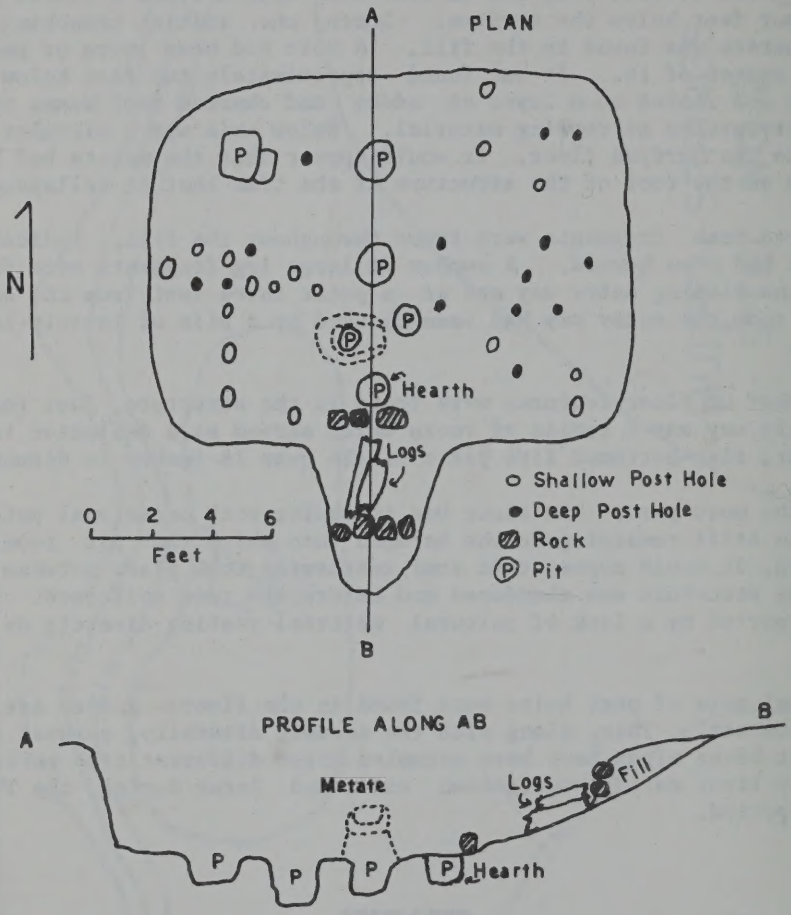
A number of floor features were found in the structure. Just inside the entry way was a series of rocks which served as a deflector for a circular, flat-bottomed fire pit a little over 18 inches in diameter.

For the most part, the floor was irregular with occasional patches of adobe still remaining on the hardpan into which the pit room had been dug. It would appear that some weathering took place between the time the structure was abandoned and before the roof collapsed. This was supported by a lack of cultural material resting directly on the floor.

Several sets of post holes were found in the floor, a deep set and a shallow set. This, along with the ceramic diversity, suggest that this pit house might have been occupied at two different time periods; possibly first during Georgetown times and later during the Three Circle period.

CERAMICS

The ceramic sample from the sites on the exchange lands consisted of 6,153 sherds. These were studied by Timothy C. Klinger during July and August of 1972. They were placed in traditional type categories and the sherd counts for each room at each site are presented in Appendix A, which was prepared by Klinger. The types are those defined in Cosgrove and Cosgrove (1932), Haury (1936b), Hawley (1936), and Kidder, Cosgrove and Cosgrove (1949) are simple descriptive categories.



BURRO SPRINGS SITE NO. 2 ROOM 1

FIGURE 13.

Only 145 sherds were recovered from the C F Spring site. Out of this small ceramic sample,81 per cent of the sherds were plain brownwares.The largest of the other categories were incised and cordmarked brownwares and Chupadero Black-on-white; each of these groups being represented by six sherds. The other diagnostic ceramics included one Playas red incised, one Classic Mimbres Black-on-white, and one Wingate Black-on-red sherd. The remaining sherds were textured brownwares. The ceramic assemblage indicates that this site belongs to the Animas Phase which probably dates to the 13th century.

A very large ceramic sample was recovered from the Willow Creek site but plain brownwares accounted for 64 per cent of this sample (2120 out of 3311 sherds). An additional 18 per cent (600 sherds) were of Gila Red, a plain red slipped and polished ware. Diagnostic ceramics included 205 sherds of Gila Polychrome (6 per cent), 44 sherds of Tonto Polychrome (1 per cent) and 55 sherds of Mimbres Classic Black-on-white (1 per cent). Small amounts of plain incised, red filmed incised, Mimbres Boldface Black-on-white and other textured wares completed the ceramic sample. This is predominately a Salado site with the suggestion of a Classic Mimbres occupation which was not possible to isolate during the excavations.

Plain brownwares accounted for only 28 per cent of the 353 sherds recovered from the Burro Springs Site No. 1. Clapboard corrugated sherds were more common accounting for 53 per cent of the sample (186 sherds), a situation often found on Classic Mimbres sites. The most common decorated type was Mimbres Classic Black-on-white represented by 32 sherds (9 per cent). There was a single Mimbres Boldface Black-on-white sherd and 30 sherds of undifferentiated Mimbres Black-on-white (most of which were probably Classic). The single intrusive sherd was Casa Grande Red-on-buff.

The ceramic assemblage from the Burro Springs Site No. 2 was rich but uniform. Out of the 2342 sherds, 93 per cent (2181) were plain brownwares. The decorated types in order of frequency were San Francisco red (93 sherds, 4 per cent), Mimbres Boldface Black-on-white (15 sherds), Mogollon Red-on-brown (11 sherds), Three Circle Red-on-white (4 sherds) and Mimbres Classic Black-on-white (1 sherd). With the exception of San Francisco red, all accounted for less than 1 per cent of the sample.

This assemblage is very similar to that from MC110 (Fitting, 1971) where both radiocarbon and archaeomagnetic dates would place the occupation around A.D. 700. The very high percentage of plain brownware

and the suggestion of rebuilding, may indicate an earlier occupation of around A.D. 500 or earlier.

CHIPPED STONE

Chipped stone was only one-eighth as common as were ceramics in the collections which were obtained from the four sites. The assemblage consisted of 782 specimens with 80 per cent of this material being unmodified chippage (Table 1). The chipped stone was analyzed by Elizabeth Skinner who sorted basic raw material categories and tool types as a part of a larger project on horizonal and areal specificity of raw materials in Grant County (Skinner, n.d.). The data which is presented in this section is derived, in part, from that presented in Skinner's paper. Her tables are summarized in Appendix B. In August of 1972, Skinner forwarded the artifacts to Fitting for further study and illustration.

For this analysis, the lithic material was sorted into eight categories of raw material types which are listed below. The distribution of the tool,core and flake types among these categories for each site is presented in Appendix B.

1. Basalt: a fine-grained igneous material, usually dark gray to almost black.

2. Andesite: a fine-grained igneous material that is usually light gray to yellowish.

3. Rhyolite: a fine-grained igneous material, usually pink to reddish.

4. Chert: a broad category including material with a clear conchoidal fracture pattern; a dull to glossy material with colors ranging from gray,brown or black to white or yellow.

5. Chalcedony: a waxy,smooth material which is usually translucent; the color is usually white to grayish white; it occasionally has opaque white cortext.

6. Quartzite: a hard material with a large crystal structure and a glassy luster; it has a conchoidal fracture and is usually white to smoky white.

TABLE 1. CHIPPED STONE

	C F Spring	Willow Creek	Burro Springs 1	Burro Springs 2	Total
Cores	7	15	6	5	33
Cobble Tools			1		1
Bifaces					
Points	7	4	2		13
Preforms	2	5	1		8
Unifaces					
Side Scrapers	3		1	1	5
End Scrapers	5	2	1	1	9
Concave Scrapers	12	5	2	1	20
Perforators	1	3			4
Retouched Flakes	22	37	3	1	63
Retouched Blades	1	1			2
Flakes					
Flat Flakes	84	131	72	130	417
Blocky Flakes	69	59	32	37	197
Flakes of Bifacial Retouch	6		2	2	10
TOTAL	219	262	123	178	782

7. Agate: a chalcedony with a banded or irregular varigated coloration; the colors vary but are usually brownish, greenish or yellowish.

8. Obsidian: a black to green volcanic glass; thin fragments are often transparent.

The tool types were essentially those used in the Mimbres area chipped stone study (Fitting 1970, 1972a). They included plano-convex cores (Figure 14, A-C),Cobble tools (only one was found and it is not

illustrated), points (Figure 15, C-M, O-P), preforms (Figure 15, N), side scrapers (Figure 14, D-F), end scrapers (Figure 14, I, Figure 15, A), concave or spokeshave scrapers (Figure 15, B), perforators (Figure 14, G), randomly retouched flakes (none illustrated) and retouched blades, both from small core chipping (Figure 14, H). The unmodified chippage was sorted into flat flakes, blocky flakes and flakes of bifacial retouch using the same criteria as was used in earlier studies.

The sites are distinctive and will be considered as separate entities since the sampling technique varied as well as the assemblages. All material from the C F Spring site was screened or troweled. This was the only site where more chippage than sherds were recovered and it also produced more than half of the projectile points and point fragments which were recovered during the entire project.

The projectile points are not a particularly distinctive group. Two (Figures 15, C, D) are small triangular forms with concave bases and side notches. Three point fragments are apparently from triangular points without notches (Figure 15, E, F, I). The final two point fragments are the bases of side notched or expanding stem forms (Figure 15, G, H).

The lithic industry is interesting in that there is more chippage than sherds, points are very common and that cores and artifacts account for 27 per cent of the assemblage. Cores themselves are infrequent. This might be interpreted as a hunting camp where refinishing of artifacts took place. The high frequency of concave scrapers and retouched flakes might indicate that shafts were being prepared (see Fitting and Price, 1968 for an interpretation of a similar artifact distribution in a Paleo-Indian site). It certainly does not present the type of assemblage which would be expected in a long term occupation site where maintenance activities were performed.

The ratio of sherds to chipped stone at the Willow Creek site was almost 13 to 1. Artifacts again accounted for 27 per cent of the assemblage but this might be a result of the sampling technique. Numerous artifacts were picked up in surface collecting backdirt piles and in shoveling out potted rooms where it would have been less likely to recover chippage. Only a small part of the site was screened. The high frequency of cores, a very visible artifact type, was also a result of the sampling technique.

The absence of side scrapers is striking and simple retouched

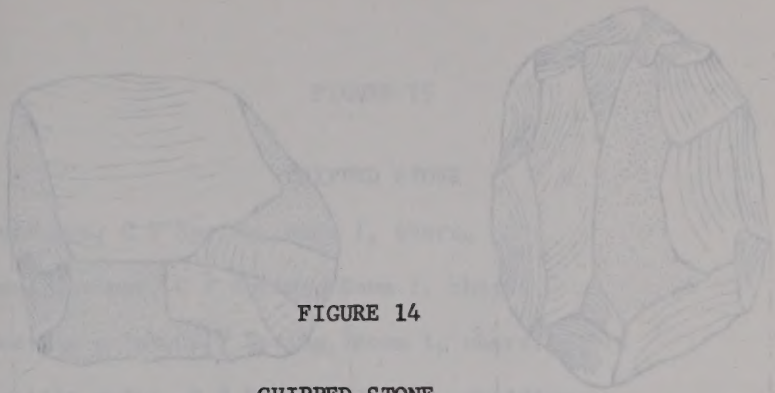


FIGURE 14

CHIPPED STONE

A. Plano-convex core, C F Spring, Room 3, basalt.

B. Plano-convex core, Burro Springs Site No. 1, B Cluster, northeast trench, poor quality chert.

C. Plano-convex core, C F Spring, Room 2, chert.

D. Side scraper, C F Spring, surface, agate.

E. Side scraper, C F Spring, Room 3, chert.

F. Side scraper, Willow Creek, B Cluster, Room 1, Level 1, chert.

G. Perforator, Willow Creek, B Cluster, Room 2, Level 1, chalcedony.

H. Retouched blade, C F Spring, surface, obsidian.

I. End scraper, Willow Creek, B Cluster, Room 2, fill, chert.

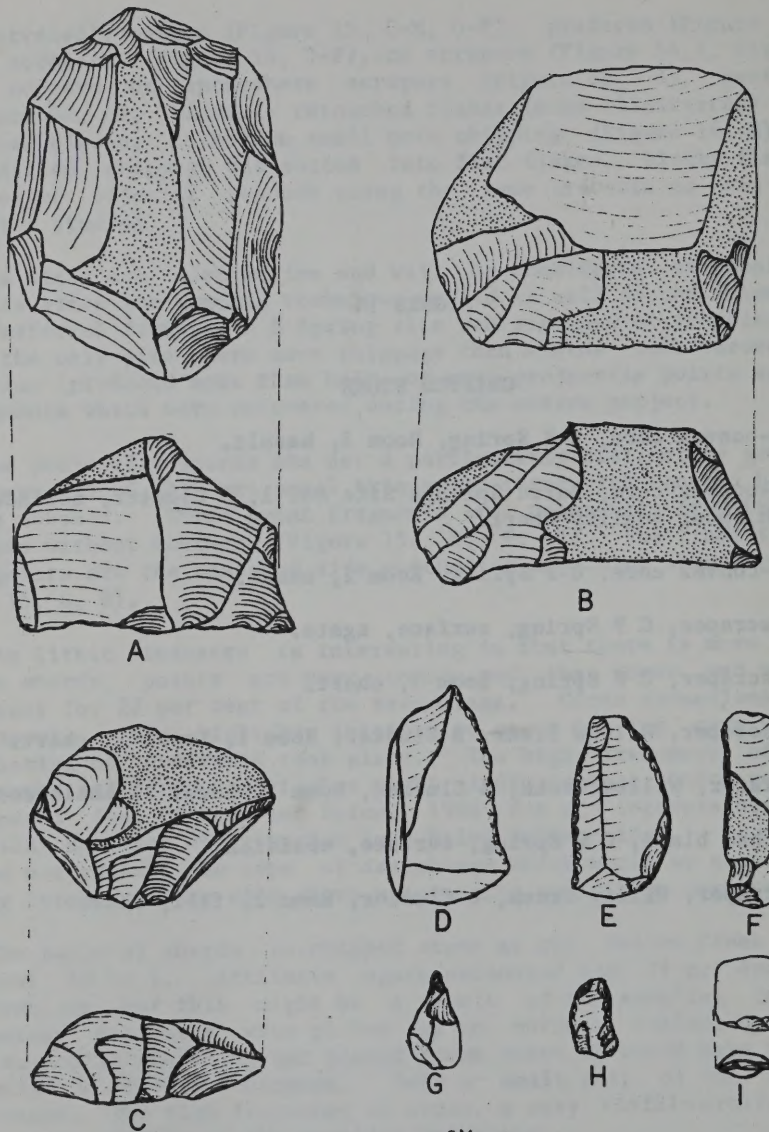


FIGURE 14.

FIGURE 15

CHIPPED STONE

A. End scraper, C F Spring, Room 1, chert.

B. Concave scraper, C F Spring, Room 1, chert.

C. Projectile point, C F Spring, Room 1, chert.

D. Projectile point, C F Spring, Room 2, obsidian.

E. Triangular point base, C F Spring, Room 1, chert.

F. Triangular point section, C F Spring, Room 2, chert.

G. Point base, C F Spring, Room 2, chalcedony.

H. Point base, C F Spring, Room 2, chert.

I. Point base, C F Spring, Room 2, chalcedony.

J. Projectile point, Willow Creek, A Cluster, Room 1, chert.

K. Projectile point, Willow Creek, Test Pit 1, Level 2, chalcedony.

L. Point base, Willow Creek, B Cluster, Room 2, fill, chert.

M. Point tip, Willow Creek, B Cluster, Room 1, Level 2, chert.

N. Preform, Willow Creek, Test Pit 1, Level 1, chert.

O. Projectile point, Burro Springs Site No. 1, A Cluster, Room 1, fill, chert.

P. Point base, Burro Springs Site No. 1, A Cluster, fill, chalcedony.

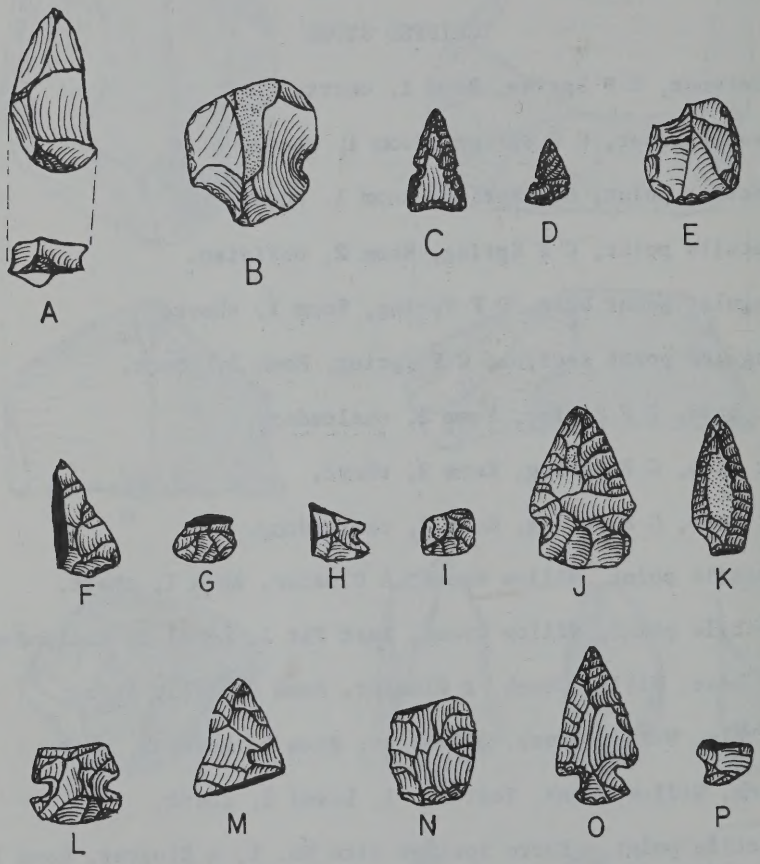


FIGURE 15.

flakes form the bulk of the unifacial tools. This is in line with the increased frequency of non-standardized unifacial tools found at many sites of later horizons in southwestern New Mexico (Fitting, 1970, 1972a).

The four projectile points are also surprising for a site of a late horizon. From earlier studies, and from the comparative literature, small projectile points were expected at a Salado site. Those from the Willow Creek site include one large point tip (Figure 15, M), two expanding stem forms (Figure 15, J, K) and one side notched point (Figure 15, L). It would be expected that points such as these would be associated with a Mimbres rather than Salado site. They might be from the Mimbres component at the site but there would be no way of demonstrating this from the mixed contexts in which they were found.

The overall interpretation of this limited assemblage would be that it represents maintenance functions carried out ancillary to other domestic activities. There is no strong indication of either primary chipping of tools or specialized hunting, hunting maintenance or butchering activities.

The Burro Springs Site No. 1 had a ratio of nearly three sherds for each piece of chipped stone. Of this assemblage, 86 per cent is unmodified chippage. Tools of any sort are rare and none dominate the assemblage. There was one complete expanding stem point (Figure 15, O) and a small fragment of what appears to be a similar type of point (Figure 15, P). They are not particularly diagnostic of any single time horizon although this style was found to be most common in the Mimbres horizon in this area (Fitting, 1972a). It is difficult to find any specific interpretation for this assemblage but it has generally similarities to that from the Willow Creek site suggesting maintenance activities ancillary to a generally domestic function.

The Burro Springs Site No.2 lithic assemblage is the most enigmatic of all. There is a ratio of 13 sherds for every item of chipped stone and 95 per cent of the chipped stone is unmodified chippage. Excluding cores, there are only four artifacts,all unifaces, from the site. This is in strong contrast with the Winn Canyon site (Fitting, n.d.) where unmodified chippage outnumbered artifacts by a 2-to-1 ratio rather than the 19-to-1 ratio found at this site. It is reminiscent of the Harris site (Haury 1936a) where only eight artifacts other than projectile points were found in 34 pit rooms. The Harris site is more of the temporal equivalent to this site than is the earlier Winn Canyon site. Again, the basic interpretation must be

that this is a site where limited maintenance activities were carried out.

GROUND STONE

The ground stone material recovered during the excavation consisted of one complete and three fragmentary metates and seventeen manos. The metates were studied in the field by Fitting and Lekson prepared the illustrations of the manos as well as recording size and raw material descriptions. Lekson's data is presented in Appendix C prepared in Septmeber of 1972.

One slab metate and a single mano were recovered from the C F Spring site. The metate had been broken and had been incorporated into the wall of Room 2.

The majority of the manos in the sample came from the Willow Creek site but even this figure is deceptive. Manos, quite literally, covered the site and could be found in almost every backdirt pile. They were all the oval to rectangular slab type shown in the illustrations. One metate was found in Room 1 in the B Cluster, but was left in situ because of its great weight. At least a dozen more complete and fragmentary metates were evident in backdirt piles and on the slopes of the mesa. All were extremely heavy trough type metates.

A fragmentary trough type metate was found at Burro Springs Site No. 1 as were three manos. One of the manos is round and flat while the other two could be described as spherical with one flattened working face.

A complete trough type metate, with a hole ground and pecked through the bottom, was found in the fill of the one room excavated at Burro Springs Site No.2 and a fragment of a similar form was found in the fill of that room. The manos included a rectangular form, a spherical form with a flattened side and a form which might be described as conical.

Of all the sites, Willow Creek stands out for the quantity of ground stone implements and C F Spring stands out for the poverty of such items.

FIGURE 16

MANOS (Mano Numbers are numbers used in Appendix C)

A. Mano 1

B. Mano 2

C. Mano 3

D. Mano 4

E. Mano 5

F. Mano 6

G. Mano 7

H. Mano 8

I. Mano 9

J. Mano 10

K. Mano 11

L. Mano 12

M. Mano 13

N. Mano 14

O. Mano 15

P. Mano 16

Q. Mano 17

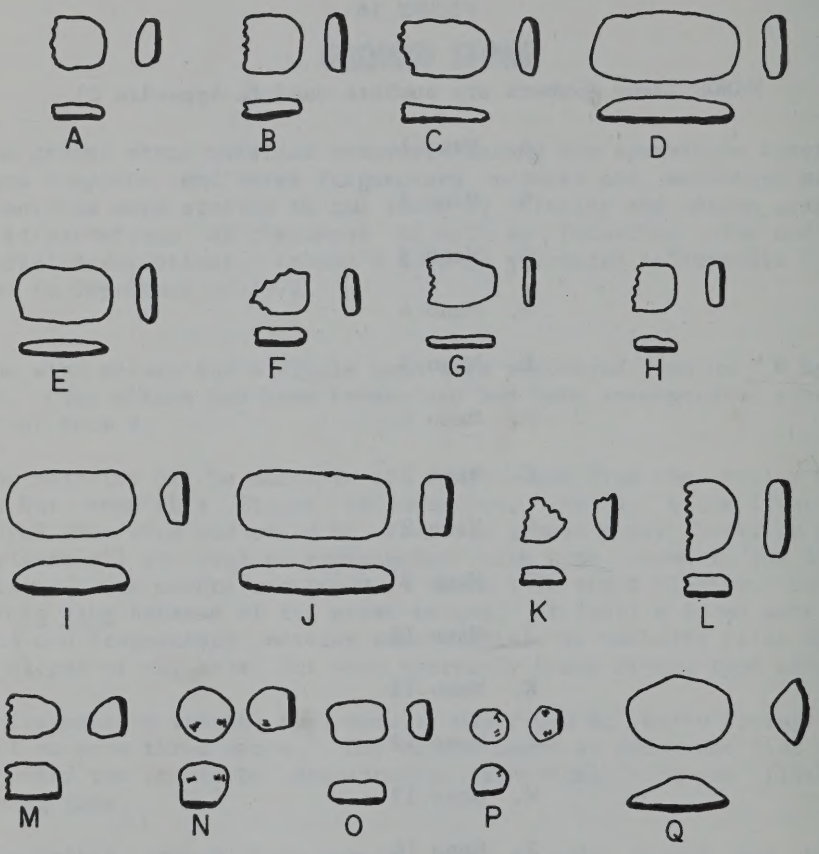


FIGURE 16.

Lekson 9/2/72

CONCLUSIONS

The excavations in the summer of 1972 in the Big Burro Mountains area were limited and most of the worked sites were very greatly disturbed. It would be possible to develop a series of wide ranging comparisons with the limited material which was recovered, but the nature of the material does not seem to warrant this. The value of these excavations, then, is not so much what they contribute in themselves but in the comparative information that they can provide in future studies.

Only a limited amount of direct evidence on subsistence was recovered--the corn from the Willow Creek site. Some functional interpretation of all the sites can be made as well as placing them within the chronological and developmental framework within southwestern New Mexico.

The earliest occupation was represented by the pit house which was excavated at Burro Springs Site No. 2. This site was similar to,and perhaps larger than, the Harris site on the Mimbres River. It seems to have been a large village where maintenance activities were carried out as a part of an agricultural adaptation. The ceramic assemblage indicates the major occupation was of the Three Circle or perhaps early Mangus stage. A similar ceramic assemblage has been dated to around A. D. 700 at the nearby site MC110.

No evidence was found of a Mangus phase,or early Mimbres occupation similar to that so strongly represented in the Cliff-Gila Valley itself (Fitting 1972b). Traces of a Classic Mimbres occupation were found at the Willow Creek site in a mixed component. They were found at the Burro Springs Site No. 1 in a pure component which should date to the period between A.D. 1100 and A.D. 1200. The ceramic assemblage is similar to the Mimbres component at the Riverside site (Baker, 1971) which has several archaeomagnetic dates placing it late in the 12th century.

The settlement arrangement and economic pattern represented at the Burro Springs Site No. 1 is not clear. It would appear that the site is composed of a series of small storage rooms surrounding plazas with a series of outlying rooms as well. It was not an intensive occupation but the lithic industry suggests that the maintenance activities that were carried out here were of a domestic nature.

The Animas Phase has not been dated in this area but it is suggested

that it fell between A.D. 1200 and A.D. 1300. That is,it is bracketed between the earlier Classic Mimbres occupation and the later Salado occupation, both of which are dated. The Animas Phase is represented at the C F Spring site. It is suggested that this was originally a group of Mimbres field rooms which were later used more intensively by an Animas Phase hunting party.

The final occupation is represented by an intensive agricultural village of Salado peoples which was present at the Willow Creek site. This is the only site where direct evidence of maize agriculture was found. The site should date to the period between A.D. 1300 and A.D. 1500 for its Salado expression.

APPENDIX A - CERAMIC COUNTS
by Timothy C. Klinger

TABLE 2. SHERD COUNTS FROM C F SPRING

	Surface	Room 1	Room 2	Room 3	Total
Plainwares	6	14	64	34	118
Incised		1	3	2	6
Playas Red			1		1
Obliterated Corrugated		1			1
Neck Banded				1	1
Cordmarked		1	3	2	6
Cordmarked/Incised		1			1
Mimbres Classic Black-on-white			1		1
Chupadero Black-on-white	2	2	1	1	6
Wingate Black-on-red	1				1
Patterned Indented		1	2		3
TOTAL	9	21	75	40	145

APPENDIX A - CERAMIC COUNTS
by Timothy C. Klinger

TABLE 3a. SHERD COUNTS FROM WILLOW CREEK

	Surface of A Cluster	Surface of B Cluster	A Cluster Rm 1, L-1	A Cluster Rm 1, L-2
Plainwares	525	328	203	84
Red Slipped	20	9	11	2
Clapboard Corrugated	25	13	18	12
Indented Corrugated				
Incised				
Playas Incised				3
Gila Red	106	58	161	95
Mimbres Classic B/W	6		11	4
Mimbres Boldface B/W				
Gila Polychrome	28	10	37	15
Tonto Polychrome	12	9	11	8
White Slipped			1	2
TOTAL	722	427	453	225

TABLE 3b. SHERD COUNTS FROM WILLOW CREEK

	B Cluster Rm 1, L-1	B Cluster Rm 1, L-2	B Cluster Rm 1, Fill
Plainwares	51	125	47
Red Slipped			1
Clapboard Corrugated	4	71	9
Indented Corrugated			
Incised			1
Playas Incised			
Gila Red	6	9	13
Mimbres Classic B/W		5	4
Mimbres Boldface B/W			
Gila Polychrome	4	75	1
Tonto Polychrome	1		
White Slipped	3		1
TOTAL	69	285	77

APPENDIX A - CERAMIC COUNTS
by Timothy C. Klinger

TABLE 3c. SHERD COUNTS FROM WILLOW CREEK

	B Cluster Rm 2,Fill	B Cluster Rm 2,Floor	B Cluster Rm 2, F#1	B Cluster General Fill
Plainwares	275	99	44	101
Red Slipped		1		
Clapboard Corrugated	7	5		16
Indented Corrugated				2
Incised				
Playas Incised				
Gila Red	46	9	4	30
Mimbres Classic B/W	7	3		6
Mimbres Boldface B/W				1
Gila Polychrome	8	6		9
Tonto Polychrome				1
White Slipped	3			8
TOTAL	346	123	48	174

TABLE 3d. SHERD COUNTS FROM WILLOW CREEK

	TP-1 L-1	TP-1 L-2	TP-2 L-1	TP-2 L-2	TP-2 L-3	TP-2 L-4	TOTAL SITE
Plainwares	92	25	49	17	28	27	2120
Red Slipped	3	2					49
Clapboard Corrugated	14	3	3	1	3	1	205
Indented Corrugated							2
Incised						1	2
Playas Incised							3
Gila Red	42	12	6		3		600
Mimbres Classic B/W	5			4			55
Mimbres Boldface B/W							1
Gila Polychrome	8		1			3	205
Tonto Polychrome				1	1		44
White Slipped	4	1	1		1		25
TOTAL	168	43	60	23	36	32	3311

APPENDIX A - CERAMIC COUNTS
by Timothy C. Klinger

TABLE 4. SHERD COUNTS FROM BURRO SPRINGS SITE NO. 1

	A Cluster				B	
	Rm 1	Rm 2	Rm 3	Fill	Cluster	Total
Plainwares	10	14	2	42	31	99
Red Slipped		1				1
Clapboard Corrugated	27	14	16	79	50	186
Indented Corrugated				2	1	3
Mimbres Boldface			1			1
Mimbres Classic	3	6	1	13	9	32
Undifferentiated B/W	2	2	1	18	7	30
Casa Grande Red/Buff		1				1
TOTAL	42	38	21	154	98	353

TABLE 5. SHERD COUNTS FROM BURRO SPRINGS SITE NO. 2

	Trench A	TP-1 L-1	TP-1 L-3	TP-1 L-4	General Fill	Total
Plainwares	310	286	402	179	1004	2181
Red Slipped	19	6	15	1	52	93
Clapboard Corrugated	1	1	3		7	12
Mogollon R/B	1				10	11
Three Circle R/W		1	1		2	4
Mimbres Boldface	2		1		12	15
Mimbres Classic					1	1
Undifferentiated B/W	3	4	2	1	10	20
Cordmarked					1	1
Incised	2				1	3
Neck Banded					1	1
TOTAL	338	298	424	181	1101	2342

APPENDIX B - CHIPPED STONE DATA
by Elizabeth Skinner

TABLE 6. CHIPPED STONE FROM C F SPRING
(Basalt, 1; Andesite, 2; Rhyolite, 3;
Chert, 4; Chalcedony, 5; Quartzite 6;
Agate, 7; Obsidian, 8)

	Raw Material Types								
	1	2	3	4	5	6	7	8	Total
Cores	2			4			1		7
Bifaces									
Points				3	2			2	7
Preforms				2					2
Unifaces									
Side Scraper				1	1	1			3
End Scraper	1		1	3					5
Concave Scraper	1			7		3		1	12
Perforators				1					1
Retouched Flakes	2		1	15	1		2	1	22
Retouched Blades								1	1
Flakes									
Flat Flakes	15		2	53	5	7		2	84
Blocky Flakes	7			38		21	2	1	69
Flakes of Bifacial Retouch	5		1						6
TOTAL	33	0	5	127	9	32	5	8	219

APPENDIX B - CHIPPED STONE DATA
by Elizabeth Skinner

TABLE 7. CHIPPED STONE FROM WILLOW CREEK
(Basalt, 1; Andesite, 2; Rhyolite, 3;
Chert, 4; Chalcedony, 5; Quartzite, 6;
Agate, 7; Obsidian, 8)

	Raw Material Types								
	1	2	3	4	5	6	7	8	Total
Cores			1	4	1	4		5	15
Bifaces									
Points				3			1		4
Preforms				3		2			5
Unifaces									
End Scraper			1	1					2
Concave Scraper				4	1				5
Perforators	1				1			1	3
Retouched Flakes	5		4	16	4	1		7	37
Retouched Blades					1				1
Flakes									
Flat Flakes	34		14	35	16	24		8	131
Blocky Flakes	13		7	21	3	15			59
TOTAL	53	0	27	87	27	46	1	21	262

APPENDIX B - CHIPPED STONE DATA
by Elizabeth Skinner

TABLE 8. CHIPPED STONE FROM BURRO SPRINGS SITE NO. 1
(Basalt, 1; Andesite, 2; Rhyolite, 3; Chert, 4;
Chalcedony, 5; Quartzite, 6; Agate, 7; Obsidian, 8)

	Raw Material Types								
	1	2	3	4	5	6	7	8	Total
Cores				2	1	3			6
Cobble Tool				1					1
Bifaces									
Points				1	1				2
Preforms				1					1
Unifaces									
Side Scraper				1					1
End Scraper				1					1
Concave Scraper				2					2
Retouched Flakes				3					3
Flakes									
Flat Flakes	3	8	1	44	3	10		3	72
Blocky Flakes		2		17		13			32
Flakes of Bifacial Retouch								2	2
TOTAL	3	10	1	73	5	26		5	123

APPENDIX B - CHIPPED STONE DATA
by Elizabeth Skinner

TABLE 9. CHIPPED STONE FROM BURRO SPRINGS SITE NO. 2
(Basalt, 1; Andesite, 2; Rhyolite, 3; Chert, 4;
Chalcedony, 5; Quartzite, 6; Agate, 7; Obsidian, 8)

	Raw Material Types								
	1	2	3	4	5	6	7	8	Total
Cores				4		1			5
Unifaces									
Side Scraper				1					1
End Scraper				1					1
Concave Scraper						1			1
Retouched Flakes	1								1
Flakes									
Flat Flakes	9	8		74	3	32	2	2	130
Blocky Flakes	1	8		15	2	11			37
Flakes of Bifacial Retouch							1	1	2
TOTAL	11	16	0	95	5	45	3	3	178

APPENDIX C - ATTRIBUTES OF MANOS

by Stephen Lekson

TABLE 10. (CF, C F Spring; WB, Willow Creek B Cluster; BS1, Burro Springs Site No. 1; BS2, Burro Springs Site No. 2)

	Unit	Length	Width	Height	Shape	Material	Complete
1	CF2F	3.50	3.50	1.25	C	D	
2	WB12	4.00	4.00	1.25	D	B	
3	WB12	6.00	4.00	0.75	C	D	
4	WB1F	10.00	4.25	1.25	A	D	X
5	WB2F	6.50	4.00	1.00	D	A	X
6	WB2F	4.25	3.50	1.25	A	A	
7	WB2BFL	4.75	3.25	0.75	A	D	
8	WB2BFL	3.00	3.75	1.00	A	A	
9	WB2BFL	8.25	4.25	1.75	C	C	X
10	WB2BFL	10.00	4.25	2.00	A	C	X
11	WBF	3.00	3.25	1.25	C	B	
12	BS1AF	3.25	5.75	1.75	A	E	
13	BS1AF	3.00	2.75	2.50	E	C	
14	BS1A2F	3.75	3.50	3.00	F	E	X
15	BS21F	4.00	3.00	1.75	A	D	X
16	BS21F	2.75	2.50	2.00	F	D	X
17	BS21F	7.00	5.00	2.25	B	B	X

(Measurements in inches)

Length: maximum across axis of grinding
Width: parallel to axis of grinding (maximum)
Height: maximum perpendicular to axis of grinding

Shape

- A Upper and lower (grinding) surfaces flat and parallel; rectangular
- B Upper and lower surfaces convex
- C Upper surface convex; lower surface flat
- D Upper surface flat; lower surface convex
- E Upper and lower surfaces flat and parallel; square
- F Spheriod with small circular grinding surface

Materials

- A Fine vesicular basalt
- B Medium vesicular basalt
- C Coarse vesicular basalt
- D Sandstone
- E Granitic material

REFERENCES

Baker, Gayla S.
1971 The Riverside Site, Grant County, New Mexico. Southwestern New Mexico Research Reports, No. 5.

Cosgrove, H.S. and C. B. Cosgrove
1932 The Swartz Ruin: A Typical Mimbres Site in Southwestern New Mexico. Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 15, No. 1.

Fitting, James E.
1970 Preliminary Notes on Some Southwestern New Mexico Lithic Industries. The Kiva, Vol. 36, No. 1, pp. 15-21.

1971 Excavations at MC110, Grant County, New Mexico. Southwestern New Mexico Research Reports, No. 2.

1972a Chipped Stone from the 1967 Mimbres Area Survey. Southwestern New Mexico Research Reports, No. 8.

1972b Preliminary Notes on Cliff Valley Settlement Patterns. The Artifact, Vol. 10, No. 4, pp. 15-30.

1973 An Early Mogollon Community: A Preliminary Report on the Winn Canyon Site. The Artifact, Vol. 11, No. 1.

Fitting, James E. and Theron D. Price
1968 Two Paleo-Indian Sites in Southwestern New Mexico. The Kiva, Vol. 34, No. 1, pp. 1-8.

Gillerman, Elliot
1964 Mineral Deposits of Western Grant County, New Mexico. State Bureau of Mines and Mineral Resources Bulletin No. 83.

Haury, Emil W.
1936a The Mogollon Culture of Southwestern New Mexico. Medallion Papers, No. 20.

1936b Some Southwestern Pottery Types, Series IV. Medallion Papers, No. 14.

Hawley, Florence M.
1936 Field Manual of Southwestern Pottery Types. University of New Mexico Bulletin, No. 291.

Hewitt, Charles H.
1959 Geology and Mineral Deposits of the Northern Big Burro Mountain-Red Rock Area, Grant County, New Mexico. State Bureau of Mines and Mineral Resources Bulletin, No. 60.

Kidder, A.V., H. S. Cosgrove and C. B. Cosgrove
1949 The Pendleton Ruin, Hidalgo County, New Mexico. Carnegie Institution of Washington, Contributions to American Anthropology and History, No. 50.

Skinner, Elizabeth
n.d. Raw Material Specificity of Tools Manufactured in the Big Burro Mountains and the Cliff Valley of Southwestern New Mexico. Unpublished manuscript in possession of the author.